October 12, 2018

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Comments of Wireless Applications Corporation
Re ET Docket No. 18-295 Unlicensed Use of the 6 GHz band and
Expanding Flexible Use in Mid-Band Spectrum GN Docket No. 17-183.

Dear Ms. Dortch:

Wireless Applications Corp. (WAC) is providing these comments regarding ET-Docket 18-295 of October 2, 2018.

As Verizon so succinctly put it in their filing of June 8, 2018 [1]: *"Verizon reiterated its conditional support for unlicensed use of the 5.925-6.425 GHz band, as long as the Commission adopts rules that protect the tens of thousands of existing microwave links and future microwave deployments in the band. The challenge of protecting this service is compounded by the importance of these links to public safety and critical infrastructure entities."*

WAC is an award-winning telecom consulting company and one of the major frequency coordinators in the US. Wireless Applications, Corp. was established in 1999 and is currently located in Bellevue, WA. We license our design tool, SiteSync Pro, and provide a valuable service to our clients that include: Frequency Analysis/Interference Analysis, Frequency Coordination, FCC Licensing, Frequency Protection, Tower Searching and GIS Analysis/Mapping. We service wireless companies of varying sizes, including both regional and national carriers.

Utilizing our design tool, WAC has been able to design long haul paths with tight tolerances in spectrally congested locations while maintaining the client's target reliability. The level of complexities for microwave interference algorithms for very close paths along the straight line has made us the best in the industry. WAC is a member of the National Spectrum Managers Association (NSMA) and follows the recommendations they have created for the services above.

WAC supports the ECC proposed feature - a Simple, Proven and Safe way of making the entire 5.925 GHz – 6.425 GHz band available for unlicensed 5G mobile and nomadic Wi-Fi devices, by adding to the NPRM one new Part 101 rule and making slight changes to Rules 101.115 and 101.143, as given in Appendix 1 of ECC's ex parte filing of September 20, 2018. By doing so, it would dramatically reduce the time for approval from years to months.

A prior coordination, particularly in the band with heavy microwave networks, is necessary and will lead to the following benefits. First, the U-NII automatic frequency control in the NPRM is unproven in the 6GHz band. An example of the AFC issues is sensing inaccuracy due to hidden nodes problems.

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[1] Verizon ex parte filing of June 8, 2018 re Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, GN Docket No. 17-183

The hidden nodes problems become more severe for point-to-point microwave paths, where the antennas are directional with very small beamwidth. Second, since operating frequencies in incumbent fixed point-to-point microwave paths are known, a prior coordination is used to determine the exclusive zone which will significantly reduce interference when unlicensed devices may not be able to detect the interference effectively and efficiently. Third, the prior coordination would help to update the exclusive zone and to minimize a potential interference when licensing new fixed microwave link. Last and more importantly, the prior coordination would relax some AFC issues, such as AFC database complexity, where de-centralized system architecture becomes feasible, and AFC available frequency accuracy, where there is low probability of interference and unlicensed devices registration process may be at minimum. This could also reduce the potential of future mitigation brought to the FCC's attention through complaints of interference. If there is no records of coordinates and/or coordinated exclusive zone, the complaints cannot be resolved among parties.

WAC's software tools have the capabilities to perform interference analysis based upon existing rules and can be easily modified for new/modified rules ECC proposes. The current analysis includes interference calculation at the licensed microwave receivers their T/I curves, antenna patterns, discrimination angles and link losses. This method would be the base in performing interference calculation with the new unlicensed transmitters, such as base stations (or eNodeBs) through downlinks or mobile users (or UEs). For this proposal, after the interference analysis, an exclusive zone, where the unlicensed base stations or mobile users are not allowed to operate, could be determined. WAC is able to provide a mitigation method to reduce interference levels from unlicensed systems to the licensed microwave systems.

Conclusion

As time is of the essence, we respectfully request that the Commission add the attached one new Part 101 rule and two rule changes -- per the Appendix 1 of Encina Communications Corp's filing of September 20, 2018 to the NPRM, so industry has the opportunity to comment on an AFC, Prior-Coordinated, or Combined network solution to solving the interference problems.

Respectfully submitted

/Kolukcija/A

Arman Kolukcija

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